

THE CHRONICLE

of Early American Industries

VOLUME III, Nos. 6 AND 7

JANUARY AND APRIL, 1946

Mass Production in America

by CARL DREPPERD

It might well be said "It had to happen here" when we speak of the creative phenomena known as repetitive manufacturing, interchangeability of parts, and mass production. All of man's progress in mechanics, arts, sciences, religions and philosophies began with the establishment of standards. The establishment of standards had gone on for many centuries but, for some cosmic reason or other, these efforts seemed to wait for the proper time and place to spring into full bloom. Apparently there was need not only for known standards but for complete freedom of mind that would nurture the creative faculties of man and make his established standards the magic key to production.

Few, even among our own inhabitants, realized that a new kind of liberty was in the making on this continent. Benjamin Franklin realized it. He wished that he could be preserved in a tun of wine for a century and then be revived in order to see his country in all its glory. Simeon DeWitt of Albany, in 1813, wrote: "The Americans are an inventive people; perhaps more so than any other existing. Without arrogating to ourselves any superiority of intellect, the cause may be traced to our more favorable circumstances; especially to the facility with which a respectable education and comfortable subsistence may be procured, and which leaves leisure to the mind to wander through the mysterious, unfathomable repositories of possible things; to the boundless fields of improvement before us, and to the scarcity of laboring hands which acts as a constant stimulus to resort to the mechanical powers and every other attainable aid, to supply the deficiency."

It is not out of order to compare the observations

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Documentary Notes

Compiled by P. R. Hoopes

XI.

At the House of William Taylor, Brasier, in Duke Street, New York, is to be Sold a Mill to Grind Chocolat, it works in a cast Iron Round Pan, 22 Inches over 6 Inches deep, made like the bottom of a Bell, and weighs upwards of two Hundred, the other part, that works in it, any Person, may see and try; it grinds three Pound an hour with greater Ease than any other Projection already Invented and likewise to what fineness they please. It is capable of being set up to a much better Advantage than it now is.

Note the Nut may be put whole into the Pan, needing no Pounding as in other Mills. The lowest Price of the Mill and what belongs to it, is Twenty Pounds.

(The American Weekly Mercury, Phila. June 9, 1720)

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XII.

The following directions taken from an English Magazine may be of present use.

Cheap Method of making a Watch-Coat for Soldiers, chiefly those in America.

Take a large check shirt of about half a crown a yard (sterling) for it should be pretty fine; cut off the wrist-bands, and continue the opening of the breast down to the bottom; sew up the sides from the gussets downwards; rip out the gathers in the foreparts of the collar as far as the shoulder straps, and re sew it plain to the collar; the shirt will then become a sort of watch-coat, like a bed-gown with very wide sleeves.

Take a quantity of linseed oil, and boil it gently,

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till one half is diminished, to which put a small quantity of litharge of gold, and when it is well incorporated with the oil, lay it on with a brush upon the watch-coat, so that it shall be every where equally wet.

Let the watch-coat be hung in a garret or other covered place, and so suspended that one part shall not touch another. When it is dry, a second mixture of the same kind should be laid on with a brush as before. When the second coat of painting is dry, the paint will not come off, and the garment is an effectual preservative from the rain; it is very light to carry; and being pretty full in the back, will not only keep the man dry, but also his pack and ammunition.

(The Pennsylvania Magazine, Phila. Dec. 1775, pp. 559-560)

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XIII.

An Account of yellow and red Pigment, found at Norton, with the Process of preparing the Yellow for Use . . . In a Letter from . . . Samuel Deane . . . to Mr. Caleb Gannett. . . .

Falmouth, May 30, 1782.

In several places in Norton, in the county of Bristol, in the Massachusetts, has been found a fossil, near the surface of the earth, mixed with sand and small pieces of iron ore, from which is extracted two kinds of substances useful in painting, viz., yellow and red.

To make the yellow, the process is as follows: They mount a tub, or vat, on blocks two feet high, and put into it one third part as much of the earth as will fill it: then fill it up, almost to the brim, with water. After this, with hoes, they bruise it, and stir it about till it is dissolved and well mixed with the water. The sand, gravel and iron ore, in about the space of a minute, will sink to the bottom; at which time they draw off the water, with the pigment floating in it, letting it fall through a common bread-sieve, into a vat, or tub, standing on the ground. When the paint is all sunk to the bottom, the water is taken off through holes in the sides, and the paint dried well in the open air and sunshine, on a floor made tight and surrounded with a border, to prevent its running off. Being thoroughly dried, it is fit for grinding by the painter, making a greenish yellow colour. And I am told, a little black paint mixed with it, renders it a beautiful olive colour.

The yellow paint, being dried as above, and then brought to a red heat, in a kettle over a hot fire, becomes a red paint resembling Spanish-brown, but

of a finer and brighter colour. It is used by painters, instead of Spanish-brown. They use it for out-door work; and time will soon discover whether it will not be equally durable. The manufacturers sell it for about three pence a pound, which is cheap; and it bids fair to be of great service to the public.

In the same town is found a white fossil, out of which is made a paint resembling Spanish-white, or whiting. But concerning this I have not been able to gain much information . . .

I am, Sir, Your most humble servant,
Samuel Deane.

P.S. Since writing the above I find, that this paint has stood the weather well, in several instances, for three or four years; and bids fair to prove durable: and that the red, in its present state, is sold at fifteen shillings per hundred weight; which is cheaper than can be obtained from Europe.

(Memoirs Am. Acad. Arts & Sciences, Boston, 1785. p. 378-379)

* * * * *

XIV.

The following discovery to make blue letters on sword blades, has been lately made by an American gentleman resident at Dunkirk. Take a well polished blade and hold it over a charcoal fire till it is blue; then with oil colour write such letters as you wish should appear and remain, and let them dry; then warm some strong vinegar, and pour the infusion all over the blade, which will infallibly take off the blue colour. After this process a little common warm water will take off the oil colour, and the letters will appear and remain of a curious and indelible blue; the same may be done with equal success with a common penknife, or any other instrument.

(Massachusetts Magazine, Boston. Jan. 1789, p. 63)

* * * * *

XV.

Boston, July. In every part of the Union manufactures are, in a greater or less degree, carried on with vigor, and, we believe, with success. In this town, Messrs. Richards and Co. have, within the last eleven months, manufactured Sixty One Thousand Eight Hundred pair of Wool and Cotton Cards. These employ upwards of 800 persons—and from the improvements made in the Machines used in the manufactory thereof, by an American, are afforded 50 per cent. cheaper than those formerly imported from England.

In the Sail Cloth manufactory in this town, up-

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wards of Twelve Hundred Yards a week are turned out—and, from its texture, and the care which is known is taken to prevent it from taking mildew, the demand for it is much greater than can be supplied. It is said, that improvements will be made so as to turn out One Hundred pieces per week. These manufactures, so beneficial to our country, which give bread to so many men, women and children, and which so greatly tend to stop the rage for foreign importations, most certainly merit both public and private protection and encouragement.

(Massachusetts Magazine, Boston. July 1789. p. 455)

* * * * *

XVI.

(Extract from a letter to The Society of Arts, &c.)

I am lately returned from the continent of North America, and beg leave to mention the two following remarks I made at Boston, although I must conceive them known to the Society; yet their importance will, I am sure, excuse the mentioning them to you.

In their sail-cloth or Duck manufactory, which they carry on with great spirit, they publicly alledge that theirs is superior to the British sail-cloth, from its never being subject to mildew, which I understand is very pernicious to its wear. I observed that their weavers wet or moisten their warp in the loom, before it is wove, with a decoction or jelly-like substance, made of the remains of Neats-feet, after the oil is expressed from them, and which then is of no farther use: this residuum is boiled to a jelly, or kind of glue, and used by them instead of starch made with flour and water, commonly used, if I am rightly informed, by sail-cloth manufacturers in England.

If it is this simple difference of making use of an animal instead of a vegetable substance, that gives them this superiority, it surely will not long exist; as the substitution of the one for the other cannot be difficult or expensive.

My other observation relates to the preservation of wood under water, as piles, ships bottoms, &c.

The piles that were driven to build the new bridge from Boston to Charles Town, and another in its neighbourhood, were paid or coated over, similar to painting, several times, with common whale-oil, and dried in the sun and air before the process was repeated; and this, I understand, the vessels in the whale-fishery make use of, which prevents entirely the worm from injuring the bottoms . . .

Spanish Town, Jamaica.

December 26th, 1790.

Isaac Titford.

(Trans. Soc. of Arts, &c. London. Vol. 9, 1791, pp. 184-186)

XVII.

Simple Method of trying the Quality of Gun-Powder.

Fill a thimble with the powder you wish to try. Pour it upon a dry white paper, fire the little heap with a burning coal, lightly touching the powder. If it is excellent, every grain will instantly rise in smoke, only leaving on the paper a round spot, pearl colour, if bad it burns the paper. The mean effects between these two extremes will exactly shew the quality. The powder burning the paper but little, may be pronounced better than that burning it a great deal, and if it only blackens it, of a superior quality to the first.

By this trial, the defects of its composition may also be discovered; if it blackens the paper, it contains too great a proportion of coal; does it leave yellow spots, too much sulphur; if there remains on the paper small grains like pin heads, and they should burn by applying fire, it is nitre, and the powder has not been well pulverized; if these do not burn the nitre has not been properly refined.

(The Literary Museum, West-Chester, Pa. June 1797, p. 284)

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XVIII.

Improvement in Fire-Buckets.

It is a general complaint at the extinguishing of fires in this city, that the water, as it is handed along from the pump to the engine, is continually spilling out of the buckets; to the great annoyance of the persons employed in this service, and what is of more consequence, the great waste of water: so that by the time the bucket arrives at the engine, it is frequently not more than half full.

The form of the buckets, as they are most commonly made, no doubt contributes to this inconvenience; and if they were made of a cylindrical form, or no wider at the mouth than at the bottom, the evil would, in some measure, be remedied, but would still exist to a considerable degree.

The following simple appendage, which may be added to any bucket at a very trifling expence, will be found an effectual remedy, and without in the least impeding either the filling or emptying of the bucket.—For this purpose, provide a thin circular board of cedar, or other light wood, of the size of the bottom of the bucket, inside. This board may be strengthened by tacking on, across the grain of the wood, one or two small strips or battens. Let a piece of strong twine be made fast to the centre of the board, and also to the centre of the bottom of the

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Central New Jersey Chairmaking of the Nineteenth Century

by WM. H. MACDONALD

Chairmaking in small shops in central New Jersey reached its peak shortly after the middle of the Nineteenth Century and before the close of the century had given way completely to the competition of mass production and large scale operations. In the 1850s, '60s and '70s, many small shops producing chiefly the three-slat, rush seat decorated chair were thriving in the Counties of Monmouth, Mercer, Middlesex and Hunterdon, all in the vicinity of the capital city, Trenton. Doubtless the fact that the city presented a market for their product beyond the needs of their local communities influenced the number of chair shops in the vicinity. The communities of New Brunswick in Middlesex County, Freehold in Monmouth County and Flemington in Hunterdon County also offered an outlet for the product of these rural and small town makers.

The chair of choice made at these shops was, in general, of the same type: about three feet high with three back slats set in the post with the widest slat at the top, a rush seat, with rounds or stretchers—sometimes one, sometimes two—on each side and at the back, below the seat, and with a shaped stretcher in front. The decoration applied to the slats and the posts, as well as the style of turning, particularly of the front posts and stretcher, gave the artisan an opportunity to apply an individual touch to his product. These three-slat chairs are of two general types, straight back and bent back. In the former type, the rear posts are straight from the foot to the top, although in many the front side of the post is flattened simply by cutting away part of the round surface of the post. The bent back type, on the other hand, although turned originally as a straight post, is not only flattened but is definitely bent at a point beginning a few inches above the seat, thus adding both to the appearance of the chair and to its practicability from the standpoint of comfort of the user. The bride of 1860 and 1870, in families of moderate circumstances, looked upon these rush seat chairs as an integral part of her housekeeping equipment; one set, probably of the cheaper straight back variety, for the kitchen and one set of the more shapely and comfortable bent back variety for parlor or best room use.

Slat back rocking chairs of the same general type

as the straight chairs were also made in these local chair shops, the rockers usually being fastened to the posts by heavy screws. A few four-slat rockers were produced by some of these makers, the seats also being of rush with the slats and posts decorated. On special order, at special prices and, therefore, in limited numbers, sets of chairs were made with special turnings in the front posts, with a block in the seat over each front post and with straps of wood attached to the edges of the seat. Chairs with wood seats were produced by these makers only in very limited number and their production seems to have been fairly definitely limited to makers who had learned chairmaking in Philadelphia and there became skilled in making this type of chair. A few all wood settees were produced by these makers and some settees with rush seats were produced.

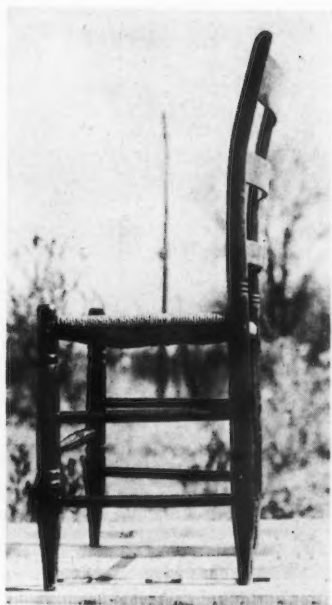
Chairs made in these small shops prior to 1850, and for twenty years or more thereafter, reflected the ability of the maker, and gave range to his personal taste in turnings and detail of design. Gradually, however, in part of the Monmouth County area at least, commercial saw mills began sawing chair stock, both for posts and slats. Chairmakers in this particular area, perhaps to meet competition in costs, began to use this ready cut stock until eventually the style of chairs produced at several different shops became almost standardized.

Several factors had a direct bearing upon the location of these small chair shops. One was a prospective market, including a strictly local market and also a larger market for surplus stock, available within practical hauling distance by horse and wagon. Other factors were availability of wood lots of maple and hickory or oak, and availability of natural growths of rush. Maple and hickory or oak trees were cut in a nearby wood lot; poplar trees for slats were cut locally or poplar planks were purchased and hauled from a distance; rush was obtained in abundance along South River in Middlesex County or local growth of cattails was utilized for material for seats.

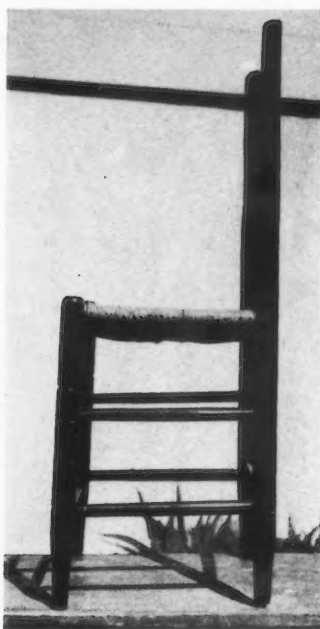
The chairs were a handmade article throughout, requiring labor, skill and time far greater than appears commensurate with the price obtained. First, selected trees had to be felled, the bark removed, the logs split into chair stock size and the stock hauled to the chair shop for seasoning and "working up." Selected stock, after being shaped by broad ax and drawing knife, was then turned down to the size of chair posts on a foot treadle lathe. The cross pieces

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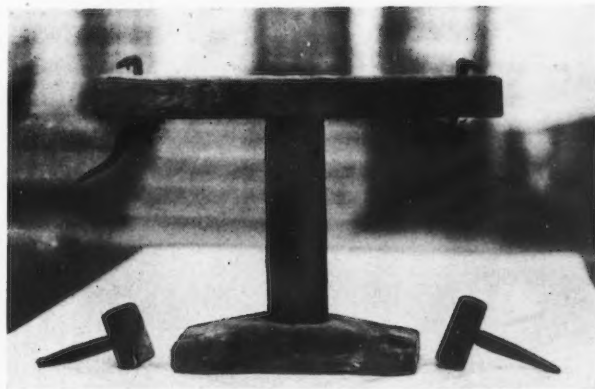
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Typical bent back chair (Side view)

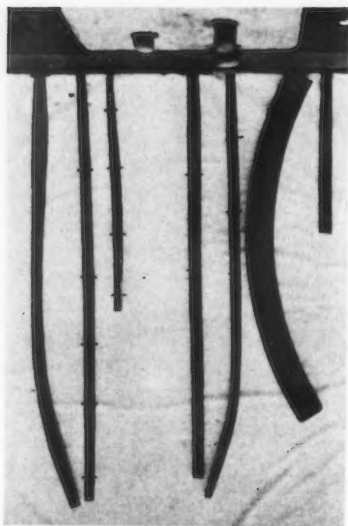


Typical straight back chair (Side view)

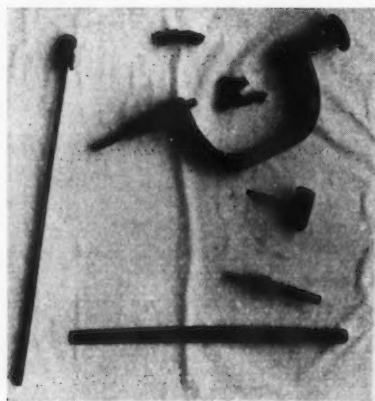


Matting stool or "cricket" used in making rush seats

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Chairmakers' patterns



*Tools used in making slat back chairs
with rush seats*



A chairmaker's bench

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Central New Jersey Chairmaking—Continued

or rounds to brace the posts were also turned and the slats sawed from seasoned wood and planed. Any of the pieces so prepared, and which was to be bent or curved in the final product, such as slats and rear posts of the bent back variety, must then be steamed or soaked in hot water, placed in racks or "crimps" constructed for the purpose where they were carefully bent to conform to the shape of the rack, fastened securely and allowed to dry for several days. Holes were then bored in the proper places in the posts for the rounds and matting braces and slots chiseled or gouged for the slats. All this must be done before the frame could be assembled.

The rush for the seat was then selected from the stock previously harvested, sun cured and stored. The selected strands, after being moistened, were twisted together and the seat constructed on the chair frame. This rush had been collected when green during the preceding season; the chairmaker with helpers had journeyed with one or more teams and rack wagons to a natural rush flat, cut the rush, hauled it in bundles to his shop where each bundle was opened, spread out and cured many days, much handling being necessary for the curing process alone.

After the seat was completed, it was painted. The chair frame was given a prime coat for finishing, then a second coat after which the decorations were applied by the use of stencils or by striping, or both. A final coat of varnish was then applied and the chair was ready for sale.

A realization of the enormous amount of labor necessary to construct even the simplest of these hand made chairs should cause a deeper appreciation of this product.

The woods of choice used in these chairs are maple for posts, hickory or oak for rounds, oak, hickory or ash for matting rounds and seasoned poplar for slats. Maple was doubtless selected for two reasons, its fitness for posts and its availability; hickory or oak for strength, as well as availability; poplar was well suited for slats but other wood, including maple, was used. The practice of the skilled chairmaker was to use green wood for posts and seasoned wood for other parts. The shrinkage of the green wood improved the tightness of the joints. Some chairmakers depended so definitely on this principle that no glue was used in joints. For matting rounds or braces, scrap ash was obtained by some chairmakers from wagon building shops where

ash was regularly used in the bows of wagon tops.

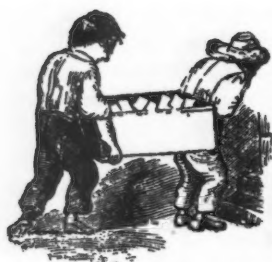
The process of finishing chairs conformed to a general pattern, although each maker practiced some variation which he had found helpful or, more particularly, time saving. Usually to the raw wood a prime coat was applied containing a red color; venetian red mixed with oil, with added glue, was common. Over this there was applied a black coat of which the base was asphaltum. This black coating over the red gave a shade suggestive of mahogany. Most of the cheaper, straight back chairs and many bent backs were given a "spotted" finish by brushing on the final black coat so that its thickness varied, giving an appearance suggestive of the grain of natural wood.

Decorative designs were usually applied by means of paper stencils. In finishing bent back chairs, it was the general practice to apply such designs to posts as well as to slats. Most of the stencils used by these makers and which have survived, were cut as an entire design from sheets of account book paper. Because of the relatively fragile material used, stencils could have been used only a limited number of times and the necessity of copying and cutting out new stencils so frequently must, indeed, have been discouraging. In decorating chairs, the parts to be decorated after painting were given a coat of varnish, which was allowed to dry until tacky. The stencil was then applied and, by means of pounces made of velvet or buckskin, colored powder was applied. The stencil was then carefully peeled off and the design completed by use of paint and a fine brush for border stripes, fruit stems, veins of leaves and similar fine lines.

The tools used by different chairmakers were practically alike and were limited in number. The use for the axe, saw, turning lathe, drawing knife and plane is obvious. A chisel or gouge and heavy mallet was used in making grooves in the posts for slats. For drilling holes in the posts for stretchers and matting braces, a handmade brace was used fitted with a hollow bit of the size of the round and having a cutting edge. Commonly, work with brace and bit and gouge or chisel was done on a heavy bench, little above knee height, the chair posts being held in place on this bench by means of triangular wedges so driven as to hold the posts tight against pegs set in the bench. For bending posts for bent back chairs, the posts after steaming were placed in a specially designed rack so made that a post inserted in a hole at the bottom could be bent to con-

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The Chronicle



The
Chronicle
issued occasionally for members of
**EARLY AMERICAN
INDUSTRIES ASS'N**

The purpose of the association is to encourage the study and better understanding of early American industry, in the home, in the shop, on the farm, and on the sea, and especially to discover, identify, classify, preserve and exhibit obsolete tools, implements, utensils, instruments, vehicles, appliances and mechanical devices used by American craftsmen, farmers, housewives, mariners, professional men and other workers.

WARREN C. LANE, *President,*
Worcester, Mass.

MRS. FRANK D. PIERCE, *Secretary and Treasurer,*
Leicester, Mass.

JOHN DAVIS HATCH, JR., *Editor,*
125 Washington Ave., Albany, N. Y.

Communications regarding the contents of *The Chronicle* should be addressed to the Editor; Suggestions for members and other matters either to the President or the Secretary-Treasurer.

MEMBERSHIP: Beginning January, 1945, regular membership will be \$2.00.

Supporting Members contribute \$5.00 or more a year.

BACK NUMBERS of *The Chronicle* are available in some instances for fifty cents or one dollar, depending on rarity. The Index to Volume I is available for one dollar.

Editor's Note

We are including in this issue membership listings. There still continue to be changes. We regret to note the number deceased since our last issue and are interested too in noting the large number of additions.

The Index to Volume II appeared at the Annual Meeting, fresh from the press. Copies of this are available to anyone wishing them at the office of the Editor. Cost is one dollar a copy. This Index, with that of Volume I, provides an excellent check on articles which have been written. Members who do not have all issues can probably find them for reference in one of the major libraries of the country.

In this issue we are including a reprint of *Mass Production in America* by Carl Drepperd. This is

only a portion of the talk which Mr. Drepperd gave at the Annual Meeting. We are using here his foreword and the detailed account of furniture and vehicles. To future issues we will add other quotations from this excellent talk.

This paper is a slightly new departure from the type of articles which we have had in that it is one interpreting the development of early American industries. It provides much food for thought. In contrast to this we are publishing in this issue an article on chair manufacturing in Central New Jersey. It is a detail account of a type of craft which undoubtedly was followed in similar pattern through the entire country.

W. L. McCormick of Tacoma, Washington, has been interested in finding two back numbers, 11 and 12 of Volume II. These are exhausted and we have placed Mr. McCormick on our list of requests for back issues. He has a solution, however, which may be helpful. "If these back numbers can be obtained in no other way, I would like to have them photostated for me from your files." We should note that some articles of missing issues have already been photostated. Any members wishing to have missing articles photostated should communicate with the Editor.

Annual Meeting

The first annual meeting of the Early American Industries Association, Inc. since 1942 was held at the Hotel Northampton, Northampton, Mass., on Friday and Saturday, October 19 and 20, 1945. Approximately one hundred members were in attendance during the two days.

The Friday morning session was called to order by President Warren C. Lane at 11:20 A. M. and a nominating committee of Wallace K. Brown, J. D. Hatch, Jr., Mrs. M. T. Nichols, George M. Simmons, and Charles Messer Stow was appointed to bring in a slate of officers for the Spring Meeting.

The Secretary's report was read and approved and the Treasurer's report, together with the auditor's report, was read and adopted. The latter showed income was largely from dues and the sale of back numbers of *The Chronicle* and that the balance on hand at the time of the meeting was \$1,026.34. The treasurer was given a hearty vote of thanks by those present. A vote of thanks was also given Mr. Hatch as Editor of *The Chronicle*.

Early American Industries

A discussion of Association policies followed and it was suggested that the Association should have a list of member-speakers to interest historical societies and others in active membership and that there should be more chapters. Honorary life memberships were unanimously voted to Mr. and Mrs. Lewis N. Wiggins and the meeting adjourned at 12:30 P. M.

At the afternoon session, which opened at 2:30, Carl Drepperd read excerpts from his recent publication, "The Value of the History of American Industries in Reselling America to Americans." The meeting adjourned at 3:25 P. M. and members were guests of the Northampton Historical Society at the Cornet Joseph Parsons House.

The Saturday morning session, which opened at 10:30, was devoted to five minute talks by members in which collection items were shown and identified. At 12:30 members were guests of the manager of the hotel at a buffet luncheon.

Saturday afternoon an auction of members' duplicates was held under the direction of George M. Simmons with lively humor.

Membership

Membership lists should be amended as follows: (N) indicates new member; (Ch) indicates change of address; (D) indicates decease.

CONNECTICUT

Stonington: Haynes, William (1459), 161 Water Street. (N)

Waterbury: Kaynor, W. F. (1452), Waterbury Companies. (N)

ILLINOIS

Jacksonville: Jordan, Miss Edith (1451), 2 Fairview Terrace. (N)

MAINE

Portland: Weeks, George H. (1257), 14 C. Street. (D)

MASSACHUSETTS

Boston: Canner, J. S. (1457), 909 Boylston Street. (N)

Concord: Trumbull, Franklin H. (1444), Musketaquid Road. (N)

Trumbull, Mrs. Franklin H. (1445), Musketaquid Road. (N)

Harvard: Sturdy, Mr. and Mrs. H. P. (984-1376). (Ch)

Medford: Nichols, M. T. (1447), 353 Lawrence Road. (N)

Needham: Stewart, Sidney (1458), 190 Nehoiden Street. (N)

Newburyport: Tribble, Roy A. (1443), Chamber of Commerce. (N)

Newton: Bortman, Mark (1448), 45 Moreland Avenue. (N)

Northampton: Atwater, Lawrence W. (1455), Curator, Wiggins Old Tavern. (N)

Springfield: Haraty, Mrs. John (1449), 299 Bay Street. (N)

Webster: Shaw, Mrs. Albert E. (1446), 33 Elm Street. (N)

NEW HAMPSHIRE

Durham: Sawyer, James C. (331), (D)

University of New Hampshire: Englehardt, Fred (1195). (D)

NEW JERSEY

Maplewood: Robertson, James A. (1424), to Ward Homestead, Maplewood. (Ch)

Upper Montclair: Vail, Harry H. (1456), 350 Highland Avenue. (N)

NEW YORK

Berlin: Whitney, Peter (1323). (D)

Cutchoque (L. I.): Wickham, Miss Julia M. (1440). (N)

New York City: Alk, George (332), to 10 West 95th Street. (Ch)

Drepperd, Carl (1450), 51 East 42nd Street. (N)

Halle, Hiram J. (508), 993 Fifth Avenue. (D)

Oxford: Hill, Marshall H. (103). (D)

Saratoga Springs: Law, Mrs. William J. (514), 432 Broadway. (D)

NORTH CAROLINA

Raleigh: North Carolina Historical Commission (1374) to North Carolina State Department of Archives and History. (Ch)

PENNSYLVANIA

Philadelphia: Campbell, J. B. (1438), Lafayette Building. (N)

Myerstown: Bassler, Dr. Harvey (1441), R. D. (N)

RHODE ISLAND

Barrington: Card, Mrs. Louis E. (1453), Ferry Lane. (N)

Centredale: Harris, Mr. and Mrs. Edwin (317-318), to R.F.D. No. 3, Box 149-B, Centredale (11). (Ch)

East Providence: Tarbox, Mrs. Thomas H. (1454), 34 Fuller Avenue. (N)

Providence: Farnum, Royal B. (1442), Rhode Island School of Design. (N)

VERMONT

Putney: Chase, Mrs. Philip B. (1439), Hickory Ridge School. (N)

The Chronicle

The Handmade Barrel Hoop

by ETHEL HAINES

(Reprinted with permission of *Barrel and Box and Packages*)

Probably few persons engaged in barrel making today have ever seen a handmade barrel hoop, yet sixty years ago or less the making of barrel hoops was one of the home industries in Greene, Ulster and Sullivan counties in New York State. The business was frequently carried on in regions where tanning had formerly been an important industry, or in other wooded areas where young saplings were plentiful. Some places which furnished large supplies of material were known as "hoop farms." Hoopmaking was a winter occupation, pursued usually by farmers or others who had some leisure in the winter from their regular tasks, and could by this means add something to their scanty income. It required little in the way of equipment except an axe, a drawing or shaving knife, a specially shaped axe-like instrument for splitting the poles, and a hoopmaker's bench, and was frequently done in a building known as a "hoop shanty," an odd little hut with a stone chimney and a fireplace where the worker burned his shavings to keep warm while he worked. On some farms, however, where hoopmaking was purely a sparetime activity, the farm shop or the barn was the scene of operations.

The chief kinds of wood used for barrel hoops were white birch, mountain ash, chestnut, white oak, hickory and maple. Two-year-old saplings were preferred, about two inches in diameter, and cut in lengths of from six to twelve feet. The smallest of these were used for nail kegs and butter firkins, the medium size for barrels, and the longest for hogsheads. These saplings were cut in November or December and were hauled to the hoop shanty by horse and sled. There they were split lengthwise; then the shaver, sitting astride a specially constructed bench, clamped the split pole into a simple vise, held by the feet and easily controlled by them. Beginning at one end, he deftly shaved the split side to the desired thickness with the drawing knife, pulling the pole toward him as he did so and letting it pass under his arm. The result was a thin, pliable rod of uniform size, with the bark on one side, the other shaved smooth and even. The ends were tapered and shaped to points so that they would lap neatly together. The hoops were tied into bundles of 500 (or sometimes a lesser number) and taken by horse

and wagon to a cooperage if one was near, or to a town along the Hudson River to be shipped by boat to some city where they would be used in the manufacture of barrels or packing cases. Some large cooperages in Albany and New York sent representatives to villages in the hoopmaking areas to inspect the hoops as they were made, and to give special orders. Hoop poles were also cut in Orange County and other neighboring regions and sent to the shaving centers in Ulster and Sullivan counties to be made up.

About 1895 it was estimated that Ulster County alone produced about 100 million hoops per year, and as the average price was \$3.50 per thousand, this business added considerably to the meagre cash of the backwoods farmer. In some sections barrel hoops were an accepted medium of exchange. But before 1900 the sawed barrel hoop came into use, and a little later the wire hoop, so that the hoopmaking business vanished as the tanning and other local industries had done. Occasionally one still finds a hoopmaker's bench in some ancient barn, and more rarely still, an old inhabitant who knows its use.

Central New Jersey Chairmaking—Continued

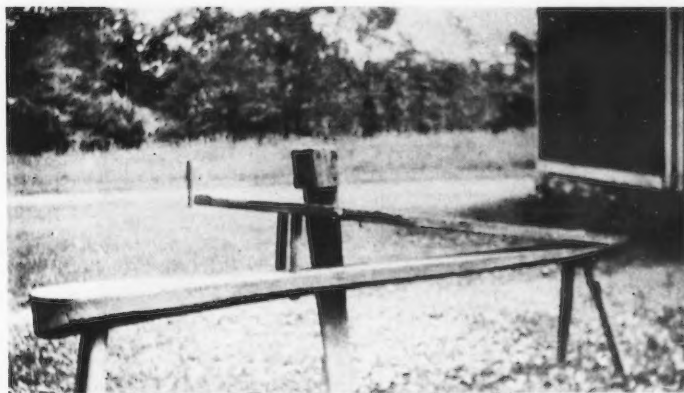
and held securely at the top by means of metal rings or by wedges.

In seating chairs, it was common practice to attach the chair to a "matting stool" or "cricket." This was a low stool bolted to the floor, having a circular upright with a cross piece so made as to rotate on the upright. The cross piece was equipped with two iron clamps to hold the chair firmly in place and at the same time permit it to be turned freely while the rush seat was made. A small wood mallet, also called a "matting tool," was used both to keep the strands of rush close together and to keep them straight, as well as to prevent overlapping, while the seat was being made. Sticks of hard wood with one end flattened were used to pack loose rush between the upper and lower parts of the seat; these were called "stuffers." "Patterns" were also used. These were sticks of hard wood, squared and of the length and shape of posts. The patterns had pins inserted, protruding so that when the proper pattern was placed against a new post and tapped, the points left marks which served to guide the worker when making openings for rounds and slats.

Chairs made in these local shops were sold at retail at the shop, the surplus being marketed through

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Early American Industries



Hoopmaker's Bench

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Work Shop of Jeremiah T. Horne, Hunterdon County, New Jersey



The Clayton Chair Shop, Allentown, Monmouth County, New Jersey

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Central New Jersey Chairmaking—Continued

established furniture stores in nearby larger centers of population. The straight back variety of chair, decorated and with rush seat, retailed from the local shops at from \$1.00 to \$1.25 each; the bent backs retailed from \$1.25 to \$1.50 each. The wholesale price of straight backs ranged from \$4.00 to \$6.00 for sets of six; bent backs brought from \$5.00 to \$7.00 per set. Three-slat rockers brought about \$6.00 per half dozen and four-slat rockers of this type were priced at about \$7.00 per half dozen. The usual price for putting in a new rush seat in any chair of this type was \$.40. Such was the compensation received by these hard working, skilled mechanics producing a strictly hand made article of usefulness and varying degrees of style. Few of their shops remain standing; none is longer used for chairmaking.

The annual output of any one of these small shops was not great; however, the combined output of these makers in the central New Jersey area was sufficiently large to result in keen competition in disposing of the product. Some shops had a yearly output of only very few sets a year; other shops, of course, had a much greater output, one in the group reaching an annual total of about one thousand chairs when operating at its peak. Several of the smaller producers, perhaps by choice but probably from necessity to augment the family income, worked at other trades or occupations during the summer season. Housepainting, broom making, basket making and farming were practiced; one of the group specialized in painting and decorating the interior of small rural churches, in addition to his chairmaking business.

Chairmakers in this Central Jersey area include, among others: Pierson Thompson, John and Peter Leonard and the Herberts of Englishtown and Ten-nent; the Claytons and the Byards, Anthony Kennedy, Joseph Buckelew, William Gulick, Jesse Van Hise and others of Allentown and vicinity; John Appleton of Hamilton Square; Henry Penson of Union Valley; the Hornes of Harmony and Sergeantville; Tunis and Joseph Servis and Henry Hortman of Sourland Mountain; John Volk and William Hann of Flemington. All these and others contributed their share of rush seat chairs of the period; hard workers producing a handmade article which met the needs of the housewife at the time and which is now being preserved, sought for and restored as heirlooms of past generations.

Mass Production—Continued

of DeWitt with those of a great mathematician of this age, "Imagination is more important than knowledge." "Thoughts are things," states a great motor car executive. "An idea in the mind produces things outside the mind" is the way one of our great contemporary physicists echoes what Simeon DeWitt of Albany said in 1813.

America was, from its very beginning, a cradle for the development of a freedom of mind and a liberty of spirit in which the people themselves were tried and proved. Conditions, circumstances and events, commonly called environment, demanded constructive thinking and a high degree of alertness. The end point of all this preliminary conditioning is not only what we have in America today but, barring the removal of the great freedoms which made this country possible, the end point that will be extended in America's tomorrows—a decade hence and a century hence.

America began by being a small powerhouse of thinking and doing. We have become a world powerhouse of thinking and doing. And we have accomplished this only because we have been largely a nation of thinkers and doers. We have often been foolish. We have often wasted materials. But we have never wasted time and never have we been afraid; especially of a new idea.

An eminent Russian aristocrat, Paul Svinin, visited this country in 1812 as a member of the Imperial Russian Diplomatic Corps. He wrote, "Craftsmen who come here from Europe combine their knowledge with the *enterprising spirit* prevalent in America. Unable to get capital and obtain a plenty of laboring hands, they create wealth by perfecting machines." Svinin said "in America everything is done by machine, even sawing rocks, cobbling shoes, making bricks and forging nails." Svinin was seeing the beginning of the mass production of common things.

The milestones in this production movement are, of course, to be found in the history of America if we know what to look for and where to look for it. We find so much evidence of thinking, pointing unerringly toward mass production, that the problem of presenting it is itself a task. There is such an abundance of evidence that these pages can carry only a very small part of it. In all this history there is inspiration for the important men of today who carry the torch fired by the men who made America's early industry possible.

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It is the production Engineers of America who now hold within their grasp the ways and means of setting up for all time an economy of plenty, based upon production that converts luxuries into staples and makes staples available to all. Thus the production Engineers of America can smash the erroneous philosophy of an economy of scarcity by acts and deeds, rather than by words or argument.

There is an unusual kind of faith that marks a man of genius, whether it be in invention or production. Thomas Edison fully believed that the same higher power which gave him an idea would lead him to the method of working out the idea. That great American, Alexander Hamilton, in 1791, presented to the Congress a report on the subject of manufactures in the United States. Said Mr. Hamilton:

"It has justly been observed, that there is scarcely any thing of greater moment in the economy of a nation, than the proper division of labor. The separation of occupations causes each to be carried to a much greater perfection than it could possibly acquire, if they were blended. This arises principally from three circumstances.

"1st. The greater skill and dexterity naturally resulting from a constant and undivided application to a single object. It is evident that these properties must increase, in proportion to the separation and simplification of objects and the steadiness of the attention devoted to each; and must be less, in proportion to the complication of objects, and the number among which the attention is distracted.

"2nd. The economy of time, by avoiding the loss of it, incident to a frequent transition from one operation to another of a different nature. This depends on various circumstances; the transition itself, the orderly disposition of the implements, machines and materials employed in the operation to be relinquished, the preparatory steps to the commencement of a new one, the interruption of the impulse, which the mind of the workman acquires, from being engaged in a particular operation; the distractions, hesitations and reluctances, which attend the passage from one kind of business to another.

"3rd. An extension of the use of machinery. —A man occupied on a single object will have it more in his power, and will be more naturally led to exert his imagination in devising methods to facilitate and abridge labor, than if he were perplexed by a variety of independent and dissimilar operations. Besides this, the fabrication of machines, in numerous instances, becoming itself a distinct trade, the artist who follows it, has all the advantages which have been enumerated for improvement in his particular art;

and in both ways the invention and application of machinery are extended."

America has brought repetitive manufacturing, parts standardization, and mass production to the highest point ever known in world history. Now American industry girds itself for even greater efforts in reconverting production for peace and plenty as it still continues to provide arms, armor and ammunition for final victory over the world forces of evil.

Consequently, this résumé of the highlights of mass production in America is an example of American history of a new kind—the kind of history that is not written by politicians, statesmen and generals, but the kind of history that is written by inventors and production engineers—history written by men who do not think first of themselves, but who think first of making all kinds of things available to all people.

Furniture

Within the field of furniture production, chair making was the first trade to attempt repetitive manufacturing by establishing standards and making parts which were joined on an assembly line. Two outstanding examples can be noted: (1) the Philadelphia, or Windsor chair, with a shaped seat, bent hickory and spoke-shaved spindle back and turned legs, and (2) the Hitchcock fancy chair. The Philadelphia chair was in mass production by 1740. The Hitchcock chair was in mass production by 1826. No one manufacturer of Windsor chairs stands out as the master of his craft. But innumerable early advertisements survive which indicate that the chairs were produced in quantities and stored for merchandising and even export shipment. We know more about Hitchcock's chair making scheme—know that his mass production was based on standardized parts, straight line assembly and decoration. He even shipped parts to Southern ports where the chairs were assembled. By 1835 he was making commercial contacts in Chicago, St. Louis, Louisville and Cincinnati. He remained in business until 1852. But other mass production manufacturers of the same type of fancy chair were operating in Philadelphia, Pittsburgh and Cincinnati. One Pittsburgh maker advertised that he was ready to furnish hotels and steamboats with his chairs on short notice. Again, the interesting point for the production engineer to consider is the machinery, in terms of lathes, shapers and stencils, that enabled this mass production of chairs at periods in our history that

Early American Industries

we seldom, if ever, associate with the mass production of common things.

In 1844 Mitchell & Rammelsberg were producing all kinds of furniture on a mass production basis in Cincinnati. They had over 80 woodworking machines, many of their own invention. This firm was the first of the great American furniture factories. Practically everything they made prior to 1870 is today considered antique, and is selling for considerably more than their original retail list price.

Vehicles of All Kinds and How They Pointed Unerringly to Motor Car Production

Without any possible exception, the greatest pre-Revolutionary contribution to transportation in America was the Conestoga wagon. This excellently designed, freight-carrying road vehicle seems to have emerged about 1745, as a combination of the heavy English road wagon of the early 18th century and the high-wheeled cart of the Flemish Huguenots of about the same period. A boat-shaped body—boat-shaped to prevent shifting of load in up-and-down-hill travel and not to serve as a boat when fording streams—was mounted on four dished wheels; the rear wheels being almost twice the diameter of the front wheels. The bodies often measured sixteen feet in length.

This wagon, while it cannot be called mass produced, was nonetheless made by so many artisans in substantially the same pattern that production reached an amazing total. During the French and Indian War, 1755, Benjamin Franklin was advertising for allotments of 150 wagons, 41 wagons, and just wagons, for the expedition to Ft. Duquesne. Built first in the valley of the Conestoga River in Lancaster County, Pennsylvania, these wagons became the pattern for the vehicle that won the West. The Studebakers, a name to conjure with in mid-Western wagon building, began building this type of wagon and supplied thousands of them to the pioneers on their way to new homes and on their way to build new cities and new industries.

Wagons, carriages and buggies before 1830 were, as a general rule, made by hand, one at a time. These products of the carriage and wagon makers art were built so well that they lasted several generations. But America was expanding at a rate the world had never before experienced. The frontiers were moving as fast as a wagon or a horse could carry a man each day. To meet the ever-growing demand for vehicles, wagon makers were setting up their

shops in all the towns along the frontier. The shortage of labor—of working hands—called for time saving machinery and special purpose machinery. By 1850 there were special purpose lathes to rough-turn and finish-turn spokes. There were machines to assemble wheels. There were machines to forge wagon and carriage hardware.

One of the earliest American advertisements of a carriage maker is dated 1740. He made his carriages one at a time by hand. After you ordered one, you waited until it was finished. One hundred years later there were carriage factories turning out a finished vehicle every hour.

In 1810 James Brewster located a carriage works at New Haven. He established the firm of Brewster & Lawrence of New York and Brewster & Collis of New Haven. The name Brewster, like the name Studebaker, is part and parcel of motor car history, just as it was a magic name in carriage production. The Bailey Carriage Works of Lancaster, Pennsylvania, was the nucleus around which a famous early motor car—the Pullman—was founded. Wilson & Childs of Philadelphia, in 1829, put into volume production one specific standard type of farm wagon. By 1848 they were mass producing the standard United States army wagon designed by Colonel Crossan.

The Newhall Carriage Works of New Haven, according to Chauncey Jerome, the famous New England Clock maker, turned out a finished carriage every hour with the aid of special purpose, steam-driven machines to produce standard parts. The carriages were assembled on a line, each part put into place and fitted by a specialist. The Studebakers also made the vast percentage of their parts with the aid of special wood and metal working machinery. Eventually, they dominated a large section of the country in the sale of wagons, carriages and buggies.

Another great carriage making center was Flint, Michigan. In 1869, W. A. Patterson established a factory there. The Durant-Dort Carriage Company, established to sell the product of the Patterson vehicle factory, sold as many as 50,000 vehicles a year. W. C. Durant of the Durant-Dort Carriage Company, was the founder of General Motors.

America, however, did not only ride in carriages and wagons. Shortly after the invention of a rigid, wooden bar fixed to two small wheels in tandem, on which a rider could sit astride and push the vehicle with his feet, the idea was improved by an American in Philadelphia. By 1818 the "Draisiana" or pedestrian hobbyhorse, made of wood and metal,

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was being mass produced. By 1850, an American suggested a steam-driven bicycle. In 1878 the Pope Manufacturing Company of Boston and Hartford was mass producing safety bicycles. The Pierce-Arrow motor car evolved from a birdcage factory because the wire used in birdcages made excellent spokes for wire wheels. The steps from birdcage to Pierce-Arrow were (1) wire spokes, (2) wire wheels, (3) bicycles, and (4) automobiles. The first experimental Pierce Arrow was two bicycles with a small steam engine set between them in a rough buggy body. The second Pierce was the same contraption driven by a one-cylinder hydro-carbon motor!

Many manufacturers of bicycles combined their interests with carriage builders and finally produced automobiles. Similarly, many carriage builders, such as Brewster, Clapp, Rogers and Denman, contributed much to the fine art of body making and the production of carriages by repetitive parts manufacture and straight line assembly. J. K. Fisher, carriage maker of New York, in 1860, designed an amazingly delightful steam carriage for common roads. Yet even earlier than 1860 America's carriage builders were thinking of self-propelled vehicles and designing self-propelled vehicles. The machines they proposed and the labor saving devices used in the mass production of carriages provide a wealth of illustrations to show the development of industry in this early century.

Documentary Notes—Continued

form to the angle of timbers making up the rack bucket, inside; and of such a length as to suffer the board to rise within about an inch of the mouth of the bucket. When the bucket is empty this board will lie on the bottom and can therefore be no obstruction in filling it at the pump; and when filled it will float on the surface of the water, and in no measure impede its being emptied into the engine, or even discharged by hand against the fire.

The effect of such a float-board in preventing the evil above stated, will be too easily conceived to need any further explanation.

R.P.

(The Weekly Magazine, Phila. Feb. 3, 1798, pp. 6-7)

Communications

In response to Edwin M. Gerould's letter asking for a plan from which an old carpenter's vise might be made, we have received a detailed ink drawing from Melvin C. Dow of Washingtonville, New York. This plan we reproduce below.

